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The Riemann problem on a finite-sheeted Riemann surface of infinite genus

Bikchantaev I.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Let R be the Riemann surface of the function u(z) specified by the equation u n = P(z) with n ∈ ℕ, n ≥ 2, and z ∈ ℂ, where P(z) is an entire function with infinitely many simple zeros. On R, the Riemann boundary-value problem for an arbitrary piecewise smooth contour Γ is considered. Necessary and sufficient conditions for its solvability are obtained, and its explicit solution is constructed. ©2000 Kluwer Academic/Plenum Publishers.

Keywords

Cauchy kernel, Finite-sheeted Riemann surface of infinite genus, Riemann boundary-value problem